

-2-

Deletions and Additions to Claims:

I Claim:

1. **[WITHDRAWN]** A method of analyzing samples of textiles, wood pulp and plant

5 products comprising the steps of:

producing a cold water extract by extracting the samples with cold water;

treating insoluble materials from the cold water extract step with dilute hot

acid to yield an acid extract;

neutralizing the acid extract;

10 treating the neutralized acid extract with an alcohol to make an alcohol

precipitate;

redissolving the alcohol precipitate in an aqueous solution; and

analyzing the aqueous solution to reveal a carbohydrate multimer pattern.

2. **[WITHDRAWN]** The method of analyzing of Claim 1, further comprising

15 the step of analyzing soluble mono- and oligosaccharides contained in the cold water
extract;

3. **[WITHDRAWN]** The method of analyzing of Claim 1, wherein the

alcohol used is selected from the group consisting of ethanol and 1-propanol.

-3-

4. **[WITHDRAWN]** The method of analyzing of Claim 3, wherein both ethanol and 1-propanol are used to make alcohol precipitates, and wherein the step of analyzing the aqueous solution compares redissolved ethanol precipitate to redissolved 1-propanol precipitate.

5 5. **[WITHDRAWN]** The method of analyzing of Claim 1, wherein the redissolved alcohol precipitate is subjected to enzymatic digestion with a series of endoglycosidases and exoglycosidases prior to the step of analyzing, and wherein the results of different enzymatic digestions are compared in the step of analyzing.

10 6. **[WITHDRAWN]** The method of analyzing of Claim

5, wherein the endoglycosidases are selected from the group consisting of endo β -1,4-glucanase, exo- α -1,4-glucanase and α -1-4-glucan glucohydrolase.

7. **[WITHDRAWN]** The method of analyzing of Claim 1, wherein heavily laundered textile samples are distinguished from less heavily laundered textile samples by a showing of
15 fewer carbohydrate multimers when the extract is analyzed.

-4-

8. **[WITHDRAWN]** The method of analyzing of Claim 1, wherein highly processed wood pulp is distinguished from less highly processed wood pulp by a showing of fewer carbohydrate multimers when the extract is analyzed.

9. **[WITHDRAWN]** The method of analyzing of Claim 1, wherein a food grain is distinguished from other food grains by the pattern produced by analyzing the aqueous solution.

10. **[WITHDRAWN]** A method to monitor waste water for evidence of domestic laundry activities comprising the step of analyzing the waste water looking for polysaccharide multimers, said multimers being evidence that the waste water contains effluent from laundering cotton fabric.

11. **[WITHDRAWN]** A method to identify the species of a sample of wood or other cellulosic material of plant origin comprising the steps of:

extracting specimens of known species of wood or cellulosic material with dilute hot acid to produce known extracts;

analyzing each known extract to reveal a pattern of carbohydrate multimers diagnostic of the species from which the extract was made;

extracting the sample of wood or cellulosic material with dilute hot acid to produce a sample extract;

analyzing the sample extract to reveal a pattern of carbohydrate multimers characteristic of the sample extract; and

-5-

comparing the pattern of the sample extract to the patterns of the known extract to determine the species of the sample.

12. **[WITHDRAWN]** The method of Claim 11 further comprising the steps of neutralizing the known extracts, treating the neutralized known extracts with an alcohol to make a known alcohol precipitate, redissolving the known alcohol precipitate in an aqueous solution prior to the step of analyzing the known extracts, neutralizing the sample extract, treating the neutralized sample extract with an alcohol to make a known alcohol precipitate, redissolving the sample alcohol precipitate in an aqueous solution prior to the step of analyzing the sample extract.

13. **[WITHDRAWN]** The method of Claim 12, wherein the alcohol used is selected from the group consisting of ethanol and 1-propanol.

14. **[WITHDRAWN]** The method of Claim 13, wherein both ethanol and 1-propanol are used to make alcohol precipitates, and wherein the steps of analyzing the known extract and the sample extracts compare redissolved ethanol precipitates to redissolved 1-propanol precipitates.

15. **[WITHDRAWN]** The method of Claim 12, wherein the redissolved alcohol precipitates are subjected to enzymatic digestion with a series of endoglycosidases and exoglycosidases prior to the steps of analyzing, and wherein the results of different enzymatic digestions are compared in the steps of analyzing.

-6-

16. .[WITHDRAWN] The method of Claim 15, wherein the endoglycosidases are selected from the group consisting of endo β -1,4-glucanase, exo- α -1,4-glucanase and α -1-4-glucan glucohydrolase.

17. .[WITHDRAWN] A method of identifying the source of dust in air
5 by using the method of Claim 11 on dust filtered from an air sample.

18. .[WITHDRAWN] A method to releasing glycan oligomers from glycogen comprising the steps of:

suspending the glycogen in aqueous medium;
10 adding an equal volume of 2N hydrochloric acid to yield acidified solution;
and
boiling the acidified solution to obtain alpha limit dextrin.

19. .[WITHDRAWN] The method according to Claim 18, wherein the glycogen is obtained from human liver tissue, and wherein the alpha limit dextrans are
15 analyzed to differentiate glycogen from normal livers from glycogen from livers of patients with glycogen storage disease.

20. .[WITHDRAWN] The method according to Claim 19, wherein the glycogen storage disease is type II glycogenosis.

20 21. .[WITHDRAWN] A method of characterizing glycogen types comprising the steps of:

-7-

suspending a glycogen in aqueous medium;
adding an equal volume of 2N hydrochloric acid to yield acidified solution;
boiling the acidified solution to obtain alpha limit dextrin;
neutralizing the alpha limit dextrin and analyzing the alpha limit dextrin to
5 characterize the glycogen.

22.[**WITHDRAWN**] A method of analyzing samples containing plant gum
comprising the steps of:

producing a cold water extract by extracting each sample with cold water;
treating insoluble materials from the cold water extract step with dilute hot
10 acid to yield an acid extract;
neutralizing the acid extract; and
analyzing the water extract and the acid extract to reveal two different
carbohydrate patterns.

23. [**WITHDRAWN**] The method according to Claim 22, wherein the
15 patterns of different samples are compared to identify a source of plant gum.

24. [**WITHDRAWN**] The method according to Claim 22, wherein the
patterns are used to authenticate works of art.

25. [**WITHDRAWN**] The method according to Claim 22, wherein the patterns are
used to
20 identify a source food additives.

-8-

26. **[CURRENTLY AMMENDEDED]** A method of analyzing samples of polysaccharide or glycoprotein containing samples of plant or animal origin including textiles, wood pulp, cellulosic materials, starch, glycogen and plant products comprising the steps of: producing a cold water extract by extracting the samples with cold water; treating
5 insoluble materials from the cold water extract step with dilute hot acid to yield an acid extract; neutralizing the acid extract; treating the neutralized acid extract with an alcohol to make an alcohol precipitate; redissolving the alcohol precipitate in an aqueous solution; and analyzing the aqueous solution to reveal a carbohydrate multimer pattern.

10 27. **[CURRENTLY AMMENDEDED]** A method of analyzing samples of polysaccharide or glycoprotein containing samples of plant or animal origin including textiles, wood pulp, cellulosic materials, starch, glycogen and plant products comprising the steps of: producing a cold water extract by extracting the samples with cold water; treating insoluble materials from the cold water extract step with dilute hot acid to yield an
15 acid extract; neutralizing the acid extract; analyzing the aqueous solution to reveal a carbohydrate oligomers pattern and comparing the relative distribution of individual carbohydrate oligomers to that of known reference standards.

28. **[CURRENTLY AMMENDEDED]** The method of analyzing of claims 26 or 27, further
20 comprising the step of analyzing soluble mono- and oligosaccharides contained in the cold water extract comprising the steps of: producing a cold water extract by

-9-

extracting the samples with cold water and comparing the relative distribution of individual mono- and oligosaccharides to that of known reference standards.

29. **[CURRENTLY AMMENDE]** The method of analyzing of claim 26, wherein
5 the alcohol used is selected from the group consisting of ethanol and 1-propanol.

30. **[CURRENTLY AMMENDE]** The method of analyzing of claim 28, wherein
both ethanol and 1-propanol are used to make alcohol precipitates, and wherein
the step of analyzing the aqueous solution compares redissolved ethanol
10 precipitate to redissolved 1-propanol precipitate.

31 **[Previously presented]**. The method of analyzing of claim 26, wherein the
redissolved alcohol precipitate is subjected to enzymatic digestion with a series
of endoglycosidases and exoglycosidases prior to the step of analyzing, and
15 wherein the results of different enzymatic digestions are compared in the step of
analyzing.

32. **[CURRENTLY AMMENDE]** The method of analyzing of claim 27, wherein the
neutralized extract is subjected to enzymatic digestion with a series of
20 endoglycosidases and exoglycosidases prior to the step of analyzing, and wherein the
results of different enzymatic digestions are compared in the step of analyzing.

-10-

33. **[CURRENTLY AMMENDED]** The method of analyzing of claims 31 or 32, wherein the endoglycosidases are selected from the group consisting of endo β -1,4-glucanase, exo- α -1,4-glucanase and α -1-4-glucan glucohydrolase.

5 34. **[CURRENTLY AMMENDED]** The method of analyzing of claims 26 or 27, wherein more heavily laundered textile samples are distinguished from less heavily laundered textile samples by a detection of fewer carbohydrate multimers, quantitative differences or different relative abundance of glycan oligomers when the extract is analyzed.

10 35. **[CURRENTLY AMMENDED]** The method of analyzing of claims 26 or 27, wherein the identity of the species of a sample of wood or other polysaccharide containing material of plant origin is determined and/or highly processed wood pulp is distinguished from less highly processed wood pulp by a difference in the relative quantity and distribution of carbohydrate multimers when the extract is analyzed and compared to
15 appropriate reference samples.

36. **[CURRENTLY AMMENDED]** The method of analyzing of claim 26, wherein a food grain is distinguished from other food grains by analyzing the aqueous extract and comparing the relative abundance of glycoconjugates in the extract to a similarly
20 prepared extract of known samples of food grains

37. **[CURRENTLY AMMENDED]** The method of claims 25-33 wherein the sample is

-11-

waste water and the sample is analyzed for monitoring the presence of glycan oligomers as evidence of discharge of polysaccharides from domestic laundry activities or other processing of polysaccharide-containing material further comprising the step of analyzing the waste water sample directly and treating the waste water sample with
5 dilute hot acid to yield an acid extract; neutralizing the acid extract; analyzing the aqueous solution to reveal a carbohydrate oligomer pattern and comparing the relative distribution of individual carbohydrate oligomers to that of known reference standards to determine the ultimate source of the polysaccharide material.

10 38. **[CURRENTLY AMENDED]** A method utilizing claims 26-33 in which the sample contains a plant gum and the subsequent comparison of the glycan oligomer pattern with that of known samples of plant gums enables the identification of the plant gum in the unknown sample of food, pharmaceutical or work of art for the purpose of authenticating the work of art based on the plant gums known to have been used by the
15 artist.

39. **[CURRENTLY AMENDED]** A method of identifying the source contribution of polysaccharides of plant or animal origin of dust in air by using the method of claims
20 26-33 on dust removed from an air sample by a filter to identify the polysaccharide based on the glycan oligomer distribution when compared with the glycan oligomer